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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|-------------------------------------|---------------------------------|------------------------|
| 10/500,872 | 12/06/2004 | Hubertus Johannes Marie Op Den Camp | OP DEN CAMP-1 | 1317 |
| 1444 7590 04/15/2009 BROWDY AND NEIMARK, P.L.L.C. 624 NINTH STREET, NW SUITE 300 WASHINGTON, DC 20001-5303 | | | EXAMINER FRONDA, CHRISTIAN L | |
| | | | ART UNIT 1652 | PAPER NUMBER |
| | | | MAIL DATE 04/15/2009 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|---|--|
| Office Action Summary | Application No. 10/500,872 | Applicant(s) OP DEN CAMP ET AL. | |
| | Examiner CHRISTIAN L. FRONDA | Art Unit 1652 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29,31,33-35,37,39,44,45 and 51 is/are rejected.
- 7) ☒ Claim(s) 30,36,38,40-43,46-50 and 52-56 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/22/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 29-56 as listed in the claim set filed 12/23/2008 are pending and under consideration in this Office Action.
2. The rejection of claims 1-4, 6-20, 25, 27, and 28 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement has been withdrawn in view of applicants' arguments and claim amendment filed 12/23/2008.
3. The rejection of claims 1-4, 6-20, 25, 27, and 28 under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement has been withdrawn in view of applicants' arguments and claim amendment filed 12/23/2008.
4. Claim 42 is objected to for reciting "The yeast cell of claim 44", which should be "The yeast cell of claim 41" for clarity.

Claim Rejections - 35 U.S.C. § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
6. Claims 29, 31, 33, 34, 35, 37, 39, 44, 45, 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guan et al. (US Patent 5,643,758; published 07/01/1997; reference of record) in view of Karlsson et al. (Eur J Biochem. 2001 Dec;268(24):6498-507; reference of record) and Accession Q9P8C9 (published 2000-10-01; reference of record).

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Guan et al. teach expression vectors containing promoters, prokaryotic host cells such as *E. coli* and eukaryotic host cells, and methods for making, expressing, isolating, and purifying any protein fused to the *E. coli* maltose binding protein (MBP) using the said expression vectors by transforming eukaryotic host cells with said expression vectors, culturing the transformed eukaryotic host cells in appropriate medium including glucose; and that these methods and products are useful for purifying virtually any hybrid polypeptide molecule employing recombinant techniques (see entire patent). The teachings of Guan et al. differs from the claims in that the filamentous fungus *Trichoderma reesei* host cell is not transformed with a polynucleotide encoding a xylose isomerase comprising an amino acid sequence that has at least 95% identity to SEQ ID NO: 1 or is SEQ ID NO: 1.

Karlsson et al. teach the filamentous fungus *Trichoderma reesei* host cell transformed with an expression vector containing a polynucleotide encoding Ce161A (EG IV) (see entire publication).

Accession Q9P8C9 teaches a xylose isomerase from *Piromyces sp.* E2 having an amino acid sequence that is 99% identical to SEQ ID NO: 1 (see attached alignment; reference of record).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use transform the *Trichoderma reesei* host cell taught by Karlsson et al. with the polynucleotide encoding the xylose isomerase taught by Accession Q9P8C9 having an amino acid sequence that is 99% identical to SEQ ID NO: 1. One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to express and purify the xylose isomerase taught by Accession Q9P8C9. One of ordinary skill in the art at the time the invention was made would have had a reasonable expectation for success because recombinant molecular biology techniques for heterologous or homologous expression of proteins is well developed in the art. Furthermore, culturing the transformed *Trichoderma reesei* in the medium would inherently produce ethanol and other non-ethanolic fermentation products including

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amino acids by the action of endogenous biosynthetic enzymes of the transformed *Trichoderma reesei*

Thus, the claimed invention was within the ordinary skill in the art to make and use at the time was made, and was as a whole clearly *prima facie* obvious.

Conclusion

7. No claim is allowed.

8. Claims 30, 36, 38, 40-43, 46-50, and 52-56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Declaration of Johannes Pieter Van Dijken pursuant to 37 C.F.R. §1.132 filed 12/23/2008 has been fully considered and deemed persuasive to overcome any obviousness rejection of the recited yeast cells transformed with the recited nucleic acids and process for producing ethanol and other non-ethanolic fermentation products using the recited yeast cells.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian L Fronda whose telephone number is (571)272-0929. The examiner can normally be reached Monday-Thursday and alternate Fridays between 9:00AM - 6:30PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nashaat Nashed can be reached on (571)272-0934. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christian L. Fronda/

Primary Examiner

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